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ABSTRACT

Manually managing student test record data at the college level can be inefficient in terms of both time and accuracy. A computer database program was implemented at a community college in Florida to improve student test record management. The database consisted of the test records of students currently enrolled in College Preparatory English and students who had been enrolled in the course over the previous two academic years. The computer database provided the Test Center staff a quick and efficient means of identifying the records of returning students, preparing and printing weekly progress reports, printing personalized labels, and computing statistics of final grades at the end of the term. Success was measured by comparing the time taken to perform these tasks manually to the time these tasks took on the computer. While in most cases the results did not exactly match the predictions, in all cases the computer methods were faster than the corresponding manual methods. A copy of the database instructions manual is appended along with other forms, sample reports, and instruments. (LAP)

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USING A COMPUTER DATABASE TO IMPROVE STUDENT TEST RECORD MANAGEMENT

by
Erin L. Brandy

A Practicum Report
submitted to the Faculty of the Center for the Advancement of Education of Nova University in partial fulfillment of the requirements for the degree of Master of Science.

The abstract of this report may be placed in a National Database System for reference.

October/1991

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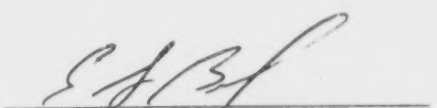

Erin L. Brandy

ABSTRACT

Using a Computer Database to Improve Student Test Record Management.

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Descriptors: Computer/Microcomputer/Database/Database Management System/Record Management/Improving Record Management

The manual methods of managing student test record data at a community college were inefficient in terms of time and accuracy. A computer database program was implemented to improve student test record management. The database consisted of the test records of students currently enrolled in College Preparatory English and students who had been enrolled in the course over the last two academic years. Use of the computer database provided the Test Center staff a quick and efficient means of identifying the records of returning (i.e., previously enrolled) students, printing personalized labels, preparing and printing weekly progress reports, and computing final grade statistics at the end of the term. Success was measured by comparing the times taken to perform the above-mentioned tasks manually and with the computer.

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CHAPTER I

Purpose

The North Campus of a community college in Southeast Florida has an open enrollment policy, whereby anyone with a high school diploma or General Equivalency Degree (GED) is eligible to enroll in college courses. Recent high school graduates are required to submit American College Testing Program (ACT) or Scholastic Aptitude Test (SAT) scores or take an appropriate placement test prior to registration. The test scores are used to determine whether the student has any basic skills deficiencies in English, reading, or mathematics. If deficiencies are found, the student is placed into one or more college preparatory courses and may complete no more than 12 hours of credit courses before completing all preparatory requirements. Transfer students, some foreign students, and students who completed some courses at the college prior to 1979 and subsequently re-enrolled are not required to take placement tests prior to enrollment at the community college but may be counseled into taking college preparatory courses to

address any skill deficiencies the student or counselor is aware of.

Enrollment figures from four successive Fall Terms show an increase each year in the number of students enrolled at the North Campus, the number of credit course student semester hours (SSH), as well as the number of college preparatory course contact hour equivalencies (CHE), as shown in Table 1. Appendix A:43 indicates that these increases are a district trend.

Table 1

Fall Term Enrollment Comparisons
for North Campus

TERM	NORTH HEADCOUNT	NORTH SSH	NORTH CHE
FA 87	2452.0	18389.0	1186.5
FA 88	2456.0	19440.0	1344.0
FA 89	2634.0	21731.0	1891.5
FA 90	3790.0	23464.0	2790.0
% INC*	13.8%	27.6%	135.1%

* Percent Increase from Fall '87 to Fall '90

As the enrollment fluctuates from term to term, so does the number of faculty employed by the North Campus. For the Fall Term of 1990, 112 adjunct faculty were hired. The core staff remained fairly constant throughout the year, and budgetary constraints forced a

freeze on hiring additional administrators or staff. For the Fall Term of 1990, the North Campus employed 39 full-time faculty, 12 full-time administrators, 61 full-time and 41 part-time support staff.

While credit courses are managed by Divisions I and II, and certain non-credit courses are managed by the Division of Continuing Studies, the Center for Personalized Instruction (CPI) is responsible for managing all college preparatory courses, including curriculum development, textbook selection, hiring of faculty to teach the courses, testing of students, and management of related student records. The core staff for the 1990-1991 academic year consisted of one Program Manager, four Learning Specialists, three full-time faculty, one Department Technician, and two part-time clerks. Additional part-time adjunct faculty, Learning Specialists, and clerks are hired on a term by term basis depending upon enrollment. For the Fall Term of 1990, 24 adjunct faculty, one part-time Learning Specialist, and three part-time clerks were hired.

The Test Center, a branch of the CPI, is responsible for testing all students enrolled in college preparatory and individualized study courses.

In addition, the Test Center administers make-up tests for all courses and the Computerized Placement Test (CPT), which was implemented prior to Fall 1990 to place incoming students into the appropriate credit or college preparatory courses. The Test Center staff remains fairly constant regardless of enrollment and typically consists of two to three part-time clerks and a CPI staff member assigned to oversee and/or assist the Test Center as part of other assigned duties.

The writer was employed by the CPI in March of 1983. The writer has at various times developed curricula and procedures for college preparatory and individualized study credit courses, selected instructional resources for various CPI courses, worked with students in all subject areas, and administered, scored, and evaluated tests for CPI students. In addition, the writer has also been responsible for all computer resources, both hardware and software, within the CPI.

In June of 1989, the writer was given the responsibility of managing all computer resources and procedures for the entire campus. Some of the duties associated with this position include maintaining the

inventory of equipment and software, installing equipment and software and writing instructions for their use, maintaining the campus computer network, and providing in-service training for faculty and staff.

The writer is familiar with database concepts in general and has worked with dBASE III+ in particular for several years. The practicum project to computerize College Preparatory English student test data has the full approval and support of the CPI Program Manager (see Appendix B:45) and the Test Center staff.

The College Preparatory English course is offered four times a year: Fall, Winter, Spring, and Summer Terms. The enrollment for this course increased from over 200 students in the 1985-1986 academic year to over 300 for the 1989-1990 academic year, as reflected in Appendix C:47.

Students are allowed three attempts at passing a college preparatory course. A withdrawal does not count as an attempt, and Spring and Summer Term enrollments count as one-half attempt each. If a student does not pass the course in the first attempt, the student is given credit for chapter tests passed for any subsequent attempts within a year of the first.

For the Fall 1990 Term, the Test Center staff consisted of three part-time clerks and no supervisor. The CPI Learning Specialist who had been responsible for supervising the Test Center activities was reassigned to the CPI to work with students because of the increased enrollment in CPI courses. All three clerks had some duties in common: updating the records of returning students, administering and scoring tests, recording test scores on the students' Test Record Sheets, and preparing study worksheets (test results) for the students. Typically, only one person was responsible for most of the tasks described in this practicum: preparing Test Record Sheets at the beginning of the term, preparing the weekly Instructor Notification Reports, and preparing the final grade statistics at the end of the term. All of the clerks could type and had basic computer skills, though the degree of proficiency varied.

At the beginning of each term, the Test Center staff prepares Test Record Sheets (see Appendix D:49), based on the initial class rolls. In the past, clerical staff typed student labels, which the Test Center staff then put on the Test Record Sheets. But because the clerical support is no longer available

(one of the grants that funds the CPI no longer supports clerical positions), the Test Center staff records by hand the information (student name, social security number, instructor name, section, and term) on the sheet, which is a time-consuming task. Any students who identify themselves as "returning students," i.e., previously enrolled, have their Test Record Sheets updated to reflect any chapters passed in previous terms within one year of the current term. As students test, their attempts and scores are noted on the Test Record Sheet.

Every week, the Test Center staff prepares by hand progress reports, known as Instructor Notification Reports (see Appendix E:51), to send to the College Preparatory English instructors. At the end of the term, the final Instructor Notification Reports are filed in a notebook with the Instructor Notification Reports from previous terms.

The methods described above and used at this campus of the Community College to manage student test record data were inefficient in terms of time and accuracy, according to the CPI and Test Center staff (see Appendices F:53 through H:57). One major weakness of the system concerned updating the records of

returning students when they re-enrolled for the course. Students who have taken a college preparatory course before but not completed it are considered "returning" students if they re-enroll. The burden was upon the students to notify the Test Center staff of any chapter tests they had mastered in a previous term. The Test Center staff then looked through the notebooks containing the records of previous terms (organized chronologically by term, numerically by course section, and alphabetically by student's last name) to locate the student's record and updated the Test Record Sheet for the current term. If returning students always indicated the precise term in which they last took the course and the section and/or name of the instructor, retrieval of the student's chapter test mastery status would not have been particularly difficult; however, students often gave no information other than their own name, or they gave incorrect information regarding when the course was taken. Therefore, the Test Center staff had to search all the records, from most recent to oldest, until the record was located.

Since this manual search of records was time-consuming (approximately four minutes per record), the records of returning students were not systematically

updated at the beginning of each term, and placing the burden of identification on the returning student sometimes resulted in incomplete or inaccurate records. For example, if a student passed the test for Chapters One, Two, and Three in the Fall Term of 1987, returned in the Winter Term of 1988 and passed Chapters Four and Five but was not identified as a returning student, then the most recent record would reflect mastery of Chapters Four and Five only. If the student returned a year later to complete the course, that student would have been given credit for Chapters Four and Five only; whereas, if the student had been identified as a returning student in the preceding Winter Term, the record would have reflected mastery of Chapters One through Five, since the records are supposed to be cumulative within a one-year period.

Each week, the Test Center staff prepared the Instructor Notification Reports for all college preparatory and individualized study course sections. The students' names were hand-printed on the Instructor Notification Reports at the beginning of the term (clerical staff used to type the forms). Each week of the Fall 1990 Term, it took approximately 30 minutes to update the Instructor Notification Reports for the

eight sections of College Preparatory English. Although the Test Record Sheets were filed alphabetically by student name in a notebook, the Instructor Notification Reports were prepared by section. The Test Center staff found it unmanageable to lay the various forms side by side and go through the Test Record Notebook only once, so instead, the staff went through the notebook once for each section.

At the end of each term, the CPI Program Manager required statistics on the number of students who passed, failed, or withdrew from the College Preparatory courses. The Test Center supervisor used the final grade sheets for each course to compute these statistics manually. Depending upon enrollment, this process could require anywhere from five to 15 minutes, and since the counting was done by hand, there was a greater chance of human error.

Enrollment figures indicated that the numbers of students enrolled in college preparatory and college credit courses was increasing yearly. As the enrollment increased, the paperwork that the Test Center staff had to manage increased as well. Budgetary constraints prohibited hiring additional Test Center staff to deal with these increases.

In order to give the Test Center clerks sufficient time to manage all of the paperwork, the CPI Program Manager had to reduce the number of hours the Test Center was open for business. If student enrollment continued to increase and staffing remained the same, some solution had to be found to manage more efficiently the enormous amount of paperwork generated by students enrolled in CPI courses. The solution should require only minimal training of the staff so that if the Test Center staff fluctuates, new staff members can be easily and quickly trained to use the computerized method of test record management.

Although College Preparatory English is not the only CPI course for which students use the Test Center, the testing requirements and procedures for this course have remained fairly constant over the years. Furthermore, while curriculum changes were anticipated for other CPI courses for the Winter 1991 Term, no changes were planned for College Preparatory English. This course, therefore, was the most logical to use for the purposes of this research project, since all factors except for the method of managing the student test records remained constant.

In order to enable the existing Test Center staff to manage more efficiently the increasing amounts of paperwork associated with student testing, the writer developed and implemented a computer database program to store, organize, and retrieve student test record data. As a result of this computer database program, several outcome objectives were attempted.

First, during the first week of the implementation period, and as timed by the writer and recorded on the timing sheet (see Appendix I:59), the Test Center staff would label the Test Record Sheets in 17.6 percent of the time (i.e., three seconds versus 17 seconds) it took to label the sheets by hand.

Second, during the first week of the implementation period, and as timed by the writer and recorded on the timing sheet (see Appendix J:61), the Test Center staff would locate the records of the returning students in 8.3 percent of the time (i.e., 20 seconds versus four minutes) it took to perform a manual search of the Instructor Notification Reports Notebook.

Third, during the first week of the implementation period, the Test Center staff would systematically check every name on the class rosters for returning students at an average search time of five seconds per

student, as timed by the writer and recorded on the timing sheet (see Appendix J:61).

Fourth, over a period of 15 weeks, and as timed by the writer and recorded on the timing sheet (see Appendix K:63), the Test Center staff would prepare the weekly Instructor Notification Reports in 53 percent of the time (i.e., eight versus 15 minutes) it took to perform the same task manually.

Fifth, at the end of the 15-week period, and as timed by the writer and recorded on the timing sheet (see Appendix L:65), the Test Center staff would compute the "Pass," "Fail," and "Withdraw" statistics for the College Preparatory English course in 16.7 percent of the time (i.e., 20 seconds versus two minutes) it took to perform the task manually.

Sixth, the time saved by computerizing the test record data would not exceed the time expended in inputting the initial data at the beginning of the term and final grades at the end of the term (see Appendix M:67).

Seventh, as an affective objective, and as measured by the writer using a written survey (see Appendix N:69), the Test Center staff would find the computer database easy to use for all tasks described

in this research project and more time-efficient than the corresponding manual methods.

CHAPTER II

Research and Solution Strategy

Shelly and Cashman (1986) define database management systems as

> software packages, also called file management systems, that allow users to define files, records within files, and data elements or fields within records in a relatively easy manner, and to provide a convenient method to access, update, and create reports from the data. (p. I-4)

For the sake of example, a "file" can be thought of as a file folder in a company's file cabinet that contains personnel records. Each employee has a separate "record," or sheet of paper, within the folder. Items such as last name and social security number are "fields" within that record. When dealing with small numbers of records (perhaps five to twenty), one can sort or process by hand the information within the records in a reasonable amount of time, but as the number of records and/or frequency with which those records have to be updated or processed grows, processing those records by hand becomes very labor-intensive.

In most schools or school districts, a central data processing department is responsible for maintaining the data bank of student records, yet nearly 44 percent of the primary sources found by this writer dealt with establishing a computer database for student records (see Appendix O:73). For instance, despite the fact that the college had a central computer system, Bitter (1985) found it necessary to create a separate computer system for managing input and output of student records because the types of reports needed by the author's department were always low on the college's priority list.

The remaining 56 percent of the primary sources dealt with creating computerized databases to manage data not required by the school's central data processing department. In two examples, the Montgomery County Public School District in Maryland (Richardson & Splaine, 1986) and the University of North Carolina at Chapel Hill (Lancaster, 1988) needed to track discipline records. In another example, the Kansas State Department of Education was looking for a more efficient means of producing its Special Education Individual Education Program (IEP) end-of-year reports (Honeyman, 1985). Bowling Green State University's

Psychology Department needed to provide annual statistical reports on their graduate students to the American Psychological Association (Midkiff, 1984). In two other cases, Trident Technical College wanted a program that could print competency certificates listing skill levels achieved by students (Tinius, 1985), and the Oakland School District in Pontiac, Michigan, was interested in performing sophisticated statistical analyses of student test data (Bauer, 1985).

In all of the above cases, processing data by hand had become too tedious and labor-intensive. Furthermore, the more time humans spent inputting and sorting data, the greater the chance for the introduction of error. While most of the schools in this study had access to a central computer system, it was not possible to rely solely on that system for one or more reasons: the system either did not contain all the data needed, or it could not produce the types of reports needed, and the data processing department was not able to modify the program to suit the needs of the department. A database management system (dbms) was the obvious solution for all but one situation due to the nature of the data that needed to be managed. In

all instances, similar types of information were kept for each student, the records had to be updated frequently, and the various report formats required that the data be organized and reorganized in many different combinations. The one exception, Trident Technical College, first looked for a specialized program to produce competency certificates, and finding none, asked its computer services department to make a recommendation. Based upon the department's recommendation, one of two dbms programs already in use at the college was chosen (Tinius, 1985).

Once it was decided that a dbms program could solve the data management needs, the next step was to identify a suitable program and hardware system to run it. Surprisingly enough, many authors offered very little information about the specific software and hardware selection choices. Lancaster (1988) stressed needs assessment as a means of determining general hardware and software selection and advised that both present and future needs be considered when selecting hardware so that the system could grow as needs change. Lancaster recommended consulting one's professional colleagues to ascertain whether dbms or file management software provides the most flexible and least difficult

utilization (file management software is generally easier to use, while dbms software offers more features, power, and flexibility). On the other hand, some authors, such as Richardson and Splaine (1986), were quite explicit in their mention of hardware and software. They used Microrim's Rbase Database management system to develop their menu-driven "Discipline Monitoring System," which ran on existing hardware and could be used on any IBM PC/XT/AT compatible machine with a 10- to 30-megabyte hard disk, at least 512K of RAM, and a printer. Bitter's (1985) solution was unique in that the author's own money was used to purchase what the department could not afford: an APPLE IIe computer and dBASE II software. In a few cases, authors wrote their own dbms software. Where no mention was made of specific equipment or software selection, it would probably be safe to assume that budgeting constraints required the use of existing resources.

In almost all cases, the authors designed their database structure by working backwards from the required or proposed report formats. In one instance, Richardson and Splaine (1986) designed the structure of Montgomery County Public School's "Discipline

Monitoring System" based on the requirements of the Department of Educational Accountability.

Public Law 94-142 requires certain record keeping and reporting on each student for whom an IEP is written, although each school is free to design its own procedures. Honeyman (1985), therefore, designed the database for the Special Education Section of the Kansas State Department of Education based upon the required special education reports. This kind of outcome-oriented planning is advisable when working with database management systems because it is difficult, or sometimes impossible, to make changes to the structure of the database once records have been inputted.

Most authors designed the structure of the database and inputted all of the records themselves. In the few instances in which more than one person would use the database, the authors stressed the importance of staff training. The "Discipline Monitoring System" of Montgomery County Public Schools was designed to be implemented throughout the entire school district, so the authors provided a brief training session prior to implementation and were available for technical support throughout

implementation (Richardson and Splaine, 1986).

As a corollary to staff training, several authors wrote a user's guide to accompany their database. The user's guide usually contained instructions on starting the program and gave samples of acceptable entries for each field. Lancaster (1988) emphasized the importance of entering data in a consistent format:

> If you wish to use your database to retrieve from fields of information such as "type of offense," then offenses must be entered into the database according to a planned list of choices.... The database can only be as reliable as the information which is entered into it. For example, the terms "fight" and "assault" may convey similar meaning to a reader, but to a computer they will appear completely unrelated. (p. 131)

Most user's guides also gave instructions on how to print reports. Some authors did not prepare their own guides but recommended commercially available guides on the specific database program they used.

All of the authors concluded that a database management system successfully met the needs for which the program was intended. Some also saw new uses for the data and new ways to report it.

Through interviews with the Test Center staff at the other three campuses of the Community College, the writer learned that one campus used a different computer database to store and manipulate records. At

the Central Campus, testing and record management for reading and English is handled by individual instructors, while the testing and record management for the CPI math courses, which account for the greatest percentage of CPI enrollment, have been centralized through a Test Center.

In order to facilitate record management for the math courses, the Central Campus Test Center staff computerized the data using QuickFile, a database management program, which requires an APPLE II computer. The program was chosen because the staff was already familiar with it from home computer use and because an APPLE II was the only computer available for Test Center use. The program is used to print two sets of student labels at the beginning of each term and to prepare weekly progress reports for instructors. Quickfile is easy to use, but slow and limited in the number of records it can handle (450 per file). Now that the Test Center has an IBM computer, the staff will look for a database management program that does not have QuickFile's limitations.

The other two campuses use paper storage methods. At the South Campus, where CPI enrollment is comparable to the North Campus's, testing and test record

management, until recently, have been handled by the CPI instructors. In the Fall 1990 Term, a Test Center was established as a centralized facility for all CPI testing, and from that term forward, all CPI test records will be managed by the Test Center. As records accumulate, the South Campus may look for a more efficient means of record management, but for the present, a paper management system is sufficient.

At the West Campus, where school is in session for the Fall and Winter terms only, and where the enrollment is the lowest of all four campuses, paper management methods have proven adequate.

The results of the literature search suggest that a database management program is best suited for managing large amounts of repetitive kinds of data that either are not available in another format, such as a school's mainframe computer, or cannot be manipulated by an existing system to produce the desired output.

As recently as 15 years ago, only mainframe systems had the power and storage capacity to manage a schools' records, but today's microcomputers and database management programs are sophisticated and powerful enough to handle a variety of record management needs. For instance, Ashton-Tate's

dBASE III+ program can handle 128 fields per record (where fields might be information such as student's name and social security number) and one billion records per file (where records might be individual students). One 3.5 inch floppy disk with a storage capacity of 1.44 megabytes can store all of the North Campus's College Preparatory English records dating back to the Fall Term of 1985 with room to spare. At the target school, all campuses had access to some sort of database management software.

In all cases of the literature search in which hardware selection was discussed, either existing hardware was used (Richardson and Splaine, 1985), or the author bought the equipment and software with personal funds (Bitter, 1985). At the target school, all Test Centers had access to computers capable of running the dbms software.

Based upon the suitability of dbms software for managing data and the availability of hardware and software at the target school, the deciding factor was whether the record management needs were such to warrant the investment of time and effort in computerizing the data and training the staff to use the computer system.

In implementing this practicum, the writer used existing computer hardware -- an IBM PS/2 Model 30 with a 20-megabyte harddrive, and an existing database management program -- dBASE III+ to do the following: (1) design the database structure based upon the desired or probable output needs of the Test Center and CPI staff and College Preparatory English instructors, (2) input the records of all College Preparatory English students for at least the past two years, (3) update or assist in updating the records of currently enrolled College Preparatory English students on a weekly basis, (4) train the staff who will use this system, and (5) write a user's guide.

CHAPTER III

Method

A pre-implementation period of approximately three weeks was required to prepare for a Winter Term 1991 implementation. During this three-week period, the writer met with the CPI Program Manager to determine which Test Center clerk would be responsible for learning and using the computerized record management system. Once identified, that clerk was to complete a ten-hour tutorial on dBASE III+. This training was never completed, however, because the hours the Test Center remained open were increased to accommodate the increased testing activity at the end of the term, and therefore, the clerk lost the time that had been set aside for training. Since the implementation of the practicum assumed minimum dBASE proficiency on the part of the Test Center clerk, the methodology was revised to time the writer instead of the clerk performing the tasks that were to be measured.

During this same three-week period, the writer designed the database structure and various report formats. An initial database of 20 to 40 records was

used to test the design and produce sample reports. The writer discussed the reports with the Test Center staff and CPI Program Manager to determine if any changes needed to be made. A field for final grade was added to the database structure and Instructor Notification Reports to reflect the various "Withdraw" grades, which could be assigned at any point in the term. Once the database structure and report designs were adjusted and approved, the writer began input of the test record data of College Preparatory English students dating back two academic years. The writer checked for data entry errors and made the necessary corrections.

During the first week of the Winter 1991 term, the Test Center was closed to students. During this time, the writer showed the Test Center clerk how to use the computer database to input the current term's class rolls for College Preparatory English. The writer performed the actual data entry at this point, since the Test Center clerk had not completed the preliminary dBASE training. The time it took to input the class rolls was recorded on the appropriate timing sheet (see Appendix M:67).

Once the data from the class rolls had been entered into the database, the writer showed the Test Center clerk how to print labels for Test Record Sheets. The writer was timed while hand-labelling the Test Record Sheets for one section and again while using the computer-printed labels for the same section. The total time labelling and the average time per label for each method was recorded on the appropriate timing sheet (see Appendix I:59).

The writer then showed the Test Center staff how to print out an alphabetized list of all students who had taken College Preparatory English within the last year but not completed their testing requirements. Using the alphabetized printout, the writer checked all of the rosters for returning students and updated the Test Record Sheets as needed. The time it took to check all of the rosters was recorded on the appropriate timing sheet (see Appendix J:61). Next, the writer randomly selected the names of five students who had been identified as returning. The writer was timed using the Instructor Notification Reports Notebook to locate the records of these students and then again using the alphabetized printout to locate

these same records. The data obtained was recorded on the appropriate timing sheet (see Appendix J:61).

During the second week of implementation, and continued throughout the sixth week, the writer continued to input the test mastery data of currently enrolled students and print the weekly Instructor Notification Reports. The writer was timed updating the Instructor Notification Reports manually and once again using the computer database to update records and print the reports. These times were recorded on the appropriate timing sheet (see Appendix K:63). During this period, the writer provided some dBASE training for the Test Center clerk and had the clerk observe the input and report printing.

During the third week, the writer began writing the instructions manual.

During the fourth week, the writer met with the CPI Program Manager to discuss the progress of the project and any revisions deemed necessary.

During the fifth week, the writer solicited feedback from the College Preparatory English instructors to determine if the computer-printed Instructor Notifications Reports met their needs. On the report, "Chapters Passed" was changed to "Tests

Passed" since the final exam was a test and covered more than one chapter.

During the seventh through fourteenth weeks, the writer continued to train the Test Center clerk to do the weekly input of test mastery and printing of Instructor Notifications Reports. The clerk followed the instructions manual, and revisions to it were made by the writer to insure that the instructions were clear, presented in a logical and easy to understand manner, and covered common difficulties encountered by the clerk.

At the conclusion of the term (week 15), the writer recorded the time it took to compute the course pass/fail/withdraw statistics using manual methods. The writer timed computing the same statistics using the computer database. The times were recorded on the appropriate timing sheet (see Appendix L:65). The writer proofread each student's record on screen to check for any data entry errors. Corrections were made where necessary before printing out a new alphabetized list of all students who had taken College Preparatory English within the past academic year and not completed it. Finally, the Test Center clerk completed a written survey (see Appendix N:69) to determine the staff's

reactions to using the computer database to manage student test record data.

At the conclusion of the project, the data from the various timing sheets were transferred to Appendix M:67 in order to demonstrate that using the computerized database was a more time-efficient means of record management than the paper method, not only on a task-by-task basis, but also overall.

CHAPTER IV

Results

While in most cases, the results did not exactly match the predictions, in all cases, the computer methods were faster than the corresponding manual methods. The results, how they were measured, and how they differ from the predictions are explained below.

First, by dividing the average time per label for the computer label method by the average time per label for the hand-written label method (see Appendix I:59), the writer was to demonstrate that the Test Record Sheets were labelled in 17.6 percent of the time (i.e., three versus 17 seconds) it would have taken to label all of the sheets by hand. A class with 16 students was used as the test sample. In actuality, it took an average of 18.75 seconds to prepare the labels by hand, compared to an average of 5.63 seconds to prepare the labels with the computer. While the outcome of 30 percent (5.63 seconds divided 18.75) exceeded the anticipated outcome, the computer method time of 90 seconds included the time the printer was printing with no need for human interaction.

Second, by dividing the average retrieval time for locating returning students using the computer printout by the average retrieval time locating returning students using the Instructor Notification Reports Notebook (see Appendix J:61), the writer was to demonstrate that the former method required 8.3 percent of the time (i.e., 20 seconds versus four minutes) of the latter. Once again, the actual results differed from the predicted results. While the average retrieval time per student using the computer printout was only 4.2 seconds, which was significantly less than the predicted 20 seconds, the average retrieval time using the notebook method was only 30.6 seconds as opposed to the predicted four minutes. Although the five students used for the purpose of timing were more or less randomly selected from the entire group of identified returning students, all five happened to have been enrolled in the previous term, so the notebook search was brief in all five cases. Instead of the predicted 8.3 percent, the computer method took 13.7 percent of the time of the notebook search.

Third, by dividing the total amount of time spent checking all of the names on the class rolls for returning students by the number of students currently

enrolled, the writer was to demonstrate that the rosters were checked for returning students at an average time not exceeding five seconds per student. The results show that the average retrieval time was 4.65 seconds per student (see Appendix J:61).

Fourth, by dividing the average time per week required to prepare the Instructor Notification Reports using the computer by the average time per week required to prepare the same reports by hand (see Appendix K:63), the writer was to demonstrate that the computer method allowed the task to be performed in 53 percent of the time (i.e., eight minutes versus 15) required by the manual method. While the actual average time per week using the computer method closely matched the predicted time (8.15 minutes versus the predicted eight), the actual average time per week using the manual method was less than predicted, or 12.1 minutes compared to the predicted 15. Of the 8.15 minutes required to prepare the weekly reports using the computer, only an average of five minutes was required to update the students' records. Thus, while the computer method actually took 67 percent of the time of the manual method, the computer method included

the time that the printer was printing and did not require human interaction.

Fifth, by dividing the total time required to compute final grade statistics using the computer by the total time required to compute the statistics by hand (see Appendix L:65), the writer was to demonstrate that the computer method allowed the task to be performed in 16.7 percent of the time (i.e., 20 seconds versus two minutes) required by the manual method. The actual times were 30 seconds for the computer method and 2.75 minutes for the manual method, yielding a figure of 18 percent (.5 divided by 2.75), which closely matched the predicted 16.7 percent.

Sixth, by adding the total times listed for the various Test Center tasks (see Appendix M:67), the writer was to demonstrate that even though the computerization of the test record data required an investment of time at the beginning of the term for the initial data entry and at the end of the term to input the final grades, the time saved by using the database to perform certain Test Center tasks exceeded the amount of time invested in building and maintaining the database. The initial inputting of the class rolls and inputting of the final grades were tasks necessary for

the computerization of the student records and which had no corollary in the manual method. All other tasks: labelling the test record sheets, checking for returning students, preparing the weekly instructor notification reports, and computing the final grade statistics, had to be performed whether using the manual or computer method. Totalling the times required for all of the tasks used in the manual method produced Total Time A, which was 278.25 minutes. Totalling the times required for all of the tasks used in the computer method produced Total Time B, which was 164.60 minutes. Subtracting Total Time B from Total Time A yields a result of 113.65 minutes, which should be greater than the time taken to input the class rolls and final grades in the computer database. The former task required 23.50 minutes, and the latter .50 minutes, for a total of 29.50 minutes. Since 29.50 minutes is significantly less than 113.65 minutes, this outcome objective was successfully met.

Seventh, by use of a written survey (see Appendix N:69, the writer was to demonstrate that the Test Center staff found the computer database easy to use and more time-efficient than the corresponding manual methods. Because the clerk who was initially

identified as the one who would be responsible for using the computer database did not have time to complete the dBASE tutorial, the writer performed all of the tasks that were measured during weeks two through six. After the sixth week of the implementation, the writer trained the clerk to prepare the weekly instructor notification reports and assisted the clerk with this task for the remainder of the term. Another Test Center clerk was not directly involved in the use of the computer database but enjoyed the benefits by being able to use computer printed labels to label the Test Record Sheets and by using the computer printout to identify returning students. Although the Spring Term was beyond the scope of this implementation period, the writer was on vacation during the first half of the Spring Term and had to turn the continuation of the project over to a full-time CPI staff person. The writer trained a CPI Department Technician to use the computer database and provided a copy of the instructions manual. Because these three staff persons were either directly or indirectly involved with the computer database, the writer had all three complete the Test Center Staff Questionnaire. The results (see Appendix N:69)

indicate that all three staff persons found the computer database easy to use and more time-efficient than the manual method.

CHAPTER V

Recommendations

After completion of the project, the writer met with the CPI Program Manager to share the results and discuss whether this project should be applied to other CPI courses, both credit and preparatory, that test through the Test Center. As far as testing procedures, credit CPI courses differ from preparatory courses in that they have no "returning students"; that is, all students repeating the course start over with testing. But all CPI courses that test through the Test Center are similar in that each student has a Test Record Sheet that must be labelled, each instructor receives a weekly Instructor Notification Report on the class's progress, and pass/fail/withdraw statistics are computed for each course at the end of the term. The same criteria used to measure the success of computerizing the test record data for College Preparatory English would be applied to the other CPI courses: if the time it takes to perform these Test Center tasks manually exceeds the time it takes to perform the same tasks using a computer database, then

it would be beneficial to computerize the test record data for other CPI courses.

Since the resources are already in place (computer and database program), the project could be extended to other CPI courses at no cost to the college. Because the Test Center staff would not need as much time to manage the paperwork with a computerized system as they would with a manual system, the Test Center could be open longer hours. Additionally, an increase in the number of students who used the Test Center would not necessarily require the hiring of additional staff to manage the increased amount of paperwork associated with those students if the paperwork were managed through the computer.

Although the computer database system was designed to facilitate management of student test record data, having these test records on computer would allow the Test Center and CPI to accomplish objectives not included within the scope of this practicum. For instance, the database could be used by the CPI to compute such things as the number of students not passing certain chapters, the average number of chapters not completed for students who fail, and so on. These kinds of data could then be used to evaluate

the effectiveness of the CPI programs and tests, perhaps contributing to improvements in both.

The results of this experiment will be shared with the CPI and Test Center staff. A copy of the practicum will be made available for their perusal and their input will be solicited. The results of this project will also be shared with the CPI Program Managers of the other three campuses of the Community College. Each will receive a copy of the practicum and will be invited to visit the North Campus for a demonstration of the computer database and how it is used to perform Test Center tasks. The writer will meet with any of the CPI Program Managers who would like to discuss how the project could be applied to their settings.

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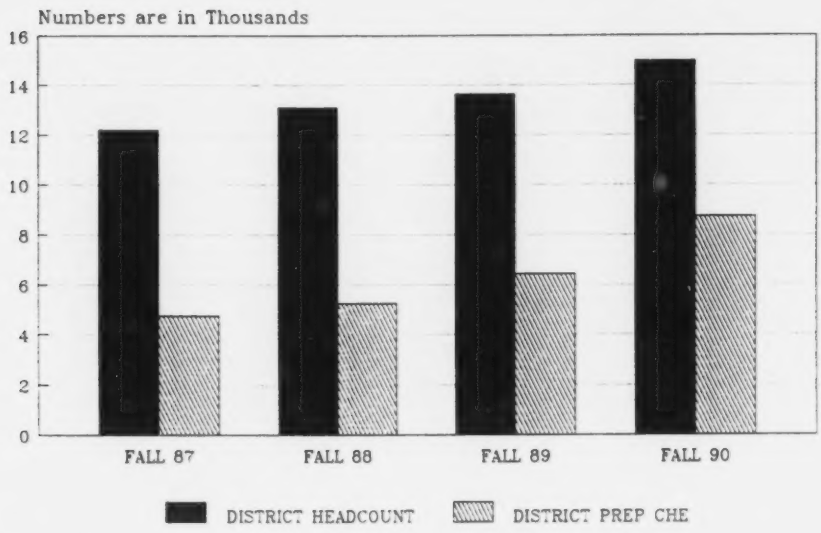
APPENDIX A: DISTRICT VS. NORTH CAMPUS ENROLLMENT

DISTRICT ENROLLMENT



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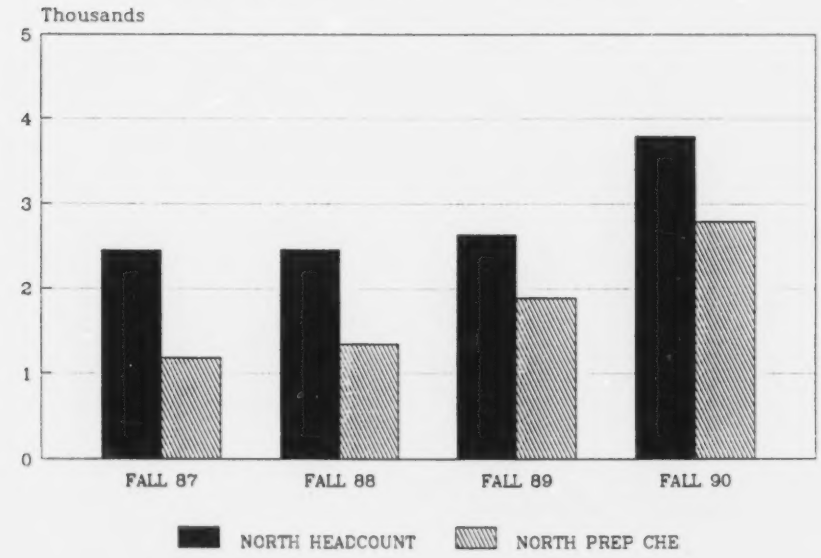
NORTH CAMPUS ENROLLMENT



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APPENDIX B: LETTER OF AUTHORIZATION

October 15, 1990

It has come to my attention that Erin L. Brandy, Computer Resource Manager for this campus, has requested permission to conduct research for, and implementation of, a practicum for Nova University. Ms. Brandy has informed me that the research will involve computerizing the test record data for College Preparatory English students.

As the enrollment in College Preparatory courses increases every year, so does the amount of paperwork the Test Center staff must handle. Recent budget cuts prohibit hiring additional staff to deal with the increase in paperwork. It concerns me that I have had to reduce the operating hours of the Test Center in order to give the existing staff enough time to manage the paperwork.

It is my hope that if the computerization of the College Preparatory English test record data proves successful, the test record data for other CPI courses could be computerized as well. Ms. Brandy has my full support in implementing any procedural changes that will allow the existing staff to process the paperwork more quickly and efficiently.

This letter authorizes Ms. Brandy to conduct whatever research is necessary to implement this project and to submit any findings to Nova University with the understanding that respect for the students' privacy and confidentiality of records will be strictly maintained.

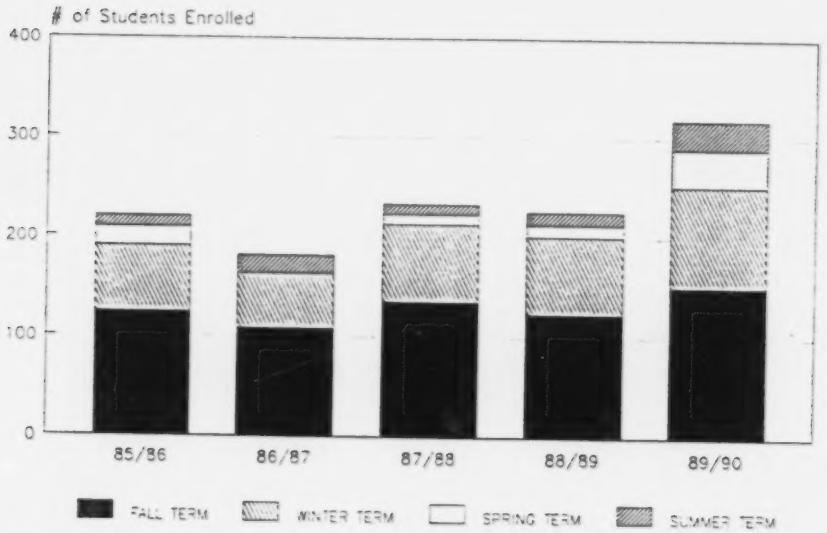
Sincerely,

Joan F. Holcomb

Joan F. Holcomb
Program Manager, CPI/IMTS

APPENDIX C: COLLEGE PREPARATORY ENROLLMENT (5-YR)

COLLEGE PREPARATORY ENGLISH
ENROLLMENT OVER A 5-YEAR PERIOD



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APPENDIX D: TEST RECORD SHEET

CPI-NORTH
ENC 1080

Name:
SS#:
Instructor/Sec:
Term:

COLLEGE PREPARATORY ENGLISH TEST RECORD SHEET

TEST	FORM				MASTERY SCORE	COMPLETED (Initials & Date)
Chal-lenge	A	B	C	D		
					25	
CHAPT						
2					17/20	
3					17/20	
4					17/20	
5					17/20	
6					26/30	
8					17/20	
10					17/20	
11					17/20	
14					22/25	
15					26/30	
EARLY EXIT EXAM	OBJECTIVE FORM A	OBJECTIVE FORM B	WRITING		OBJECT. ONLY	
	I	I	FORM A	FORM B	I 37.5	
	II	II			II 37.5	

APPENDIX E: INSTRUCTOR NOTIFICATION REPORT

ENC 1080

Instructor:
Section:

INSTRUCTOR NOTIFICATION REPORT

P = Passed with Mastery

STUDENT	CHAPTER										COMPLETION DATE/INIT.
	2	3	4	5	6	8	10	11	14	15	

APPENDIX F: LETTER OF DOCUMENTATION

October 15, 1990

Erin L. Brandy, who is conducting research in computerizing student test record data, has asked me to describe some of the disadvantages of the current non-computerized test record management system.

As a Test Center Clerk, I am responsible for preparing the Test Center at the beginning of each term, administering and scoring tests, and maintaining the student test record data. Some of my duties include labelling the Test Record Sheets, preparing the weekly Instructor Notification Reports, and searching for records of returning students.

In previous terms, the Test Record Sheet student labels have been typed, but because of staff cutbacks, we no longer have the clerical support to type labels. Printing the necessary information on the top of each Test Record Sheet is a time-consuming process. For instance, it took approximately 1.5 hours to label 200 Test Record Sheets for the students enrolled in College Preparatory English.

Preparing the weekly Instructor Notification Reports is also a time-consuming process, since the Test Record Sheets are alphabetized by student name and the Instructor Notification Reports are divided into course sections. Since there are so many sections of each course, it isn't feasible to put the Instructor Notification Reports side by side and go through the Test Record Sheet notebook only once. Instead, the book must be gone through once for every class section. If we could go through the notebook only once to update all of the Instructor Notification Reports, that would save a lot of time.

The records of returning students are updated only if the students identify themselves as "returning." Those students who do identify themselves often don't remember when they last took the course, so I have to search through all of the old records until I find the one in question. There should be some way of updating records at the beginning of each term so we don't have to wait for the students to come to us (some never do!).

Sincerely,

Marty Trowsdal

Marty Trowsdal
CPI Test Center Clerk

APPENDIX G: LETTER OF DOCUMENTATION

October 15, 1990

Erin L. Brandy, who is conducting research in computerizing student test record data, has asked me to describe some of the disadvantages of the current non-computerized test record management system.

As an instructor of College Preparatory English, I receive weekly instructor notification reports from the Test Center indicating my students' progress on their ten required lab tests. Some of my students have taken College Preparatory English before and passed some of the tests, but the current progress reports do not always include results from previous terms, since it is up to the student to alert the Test Center staff of previous test mastery. Unless I have taught a student myself in a previous term, I am not aware that that student may have already mastered some of the tests. I may call that student to my office for a conference assuming that the student has made no progress on the lab tests, when in reality, the student may have already passed a number of tests.

There should be some means of systematically checking the class rosters for students who have taken the course in previous terms so that the current test records are accurate.

Sincerely,

Richard L. Yount
ENC 1080 Instructor

APPENDIX H: LETTER OF DOCUMENTATION

October 15, 1990

Erin L. Brandy, who is conducting research in computerizing student test record data, has asked me to describe some of the disadvantages of the current non-computerized test record management system.

As the former Test Center Supervisor, one of my responsibilities was computing the number of students who had passed, not passed, or withdrawn from any of the CPI courses. I obtained these numbers by tallying the number of each type of grade (P, NP, W, WX, AU) on each grade sheet for each section of each class. In order to reduce the risk of human error, I computed each number twice. If I had had access to the grades on the school's mainframe system or if the grades had been available on any local computer, I could have computed these statistics much more quickly and returned to my many other duties as a CPI Learning Specialist.

Sincerely,

Ann K. Castillo

Ann K. Castillo
CPI Learning Specialist

APPENDIX I: TIMING SHEET
PREPARING TEST RECORD SHEET LABELS

TIMING SHEET
PREPARING TEST RECORD SHEET LABELS

A. BY MANUAL METHOD			
SECTION	START TIME	STOP TIME	TOTAL TIME
205	4:11:00	4:16:00	300 secs
A = AVERAGE TIME PER LABEL (Total Time Divided by Number of Students in Section - 16)			18.75 secs

B. BY COMPUTER METHOD			
SECTION	START TIME	STOP TIME	TOTAL TIME
205	4:17:00	4:18:30	90 secs
B = AVERAGE TIME PER LABEL (Total Time Divided by Number of Students in Section - 16)			5.63 secs

AVERAGE B/AVERAGE A = 0.300
ANTICIPATED OUTCOME = 0.176

APPENDIX J: TIMING SHEET
LOCATING RECORDS OF RETURNING STUDENTS

TIMING SHEET
LOCATING RECORDS OF RETURNING STUDENTS

A. BY NOTEBOOK SEARCH			
STUDENT	START TIME	STOP TIME	RETRIEVAL TIME
Student 1	5:17:00	5:17:18	18.00 secs
Student 2	5:18:00	5:18:45	45.00 secs
Student 3	5:19:00	5:19:45	45.00 secs
Student 4	5:20:00	5:20:28	28.00 secs
Student 5	5:21:00	5:21:17	17.00 secs
TOTAL:			153.00 secs
A = AVERAGE RETRIEVAL TIME PER STUDENT: (Total Retrieval Time Divided by 5)			30.60 secs
B. BY COMPUTER PRINTOUT SEARCH			
STUDENT	START TIME	STOP TIME	RETRIEVAL TIME
Student 1	5:11:00	5:11:05	5.00 secs
Student 2	5:12:00	5:12:04	4.00 secs
Student 3	5:13:00	5:13:05	5.00 secs
Student 4	5:14:00	5:14:05	5.00 secs
Student 5	5:15:00	5:15:02	2.00 secs
TOTAL:			21.00 secs
B = AVERAGE RETRIEVAL TIME PER STUDENT:			4.20 secs
C. CHECKING ALL RECORDS BY COMPUTER PRINTOUT SEARCH			
STUDENT	START TIME	STOP TIME	RETRIEVAL TIME
All Students	4:30:00	4:40:00	10.00 mins
TOTAL (in seconds):			600.00 secs
C = AVERAGE RETRIEVAL TIME PER STUDENT:			4.65 secs

AVERAGE B/AVERAGE A = 0.137
ANTICIPATED OUTCOME = 0.083

APPENDIX K: TIMING SHEET
PREPARING WEEKLY INSTRUCTOR NOTIFICATION REPORTS

TIMING SHEET
PREPARING WEEKLY INSTRUCTOR NOTIFICATION REPORTS

A. BY MANUAL METHOD			
PERIOD	START TIME	STOP TIME	TOTAL TIME
Week 2	4:35:00	4:50:00	15.0 mins
Week 3	8:31:00	8:43:00	12.0 mins
Week 4	8:48:00	9:00:00	12.0 mins
Week 5	8:49:00	9:01:30	11.5 mins
Week 6	5:20:00	5:30:00	10.0 mins
TOTAL:			60.5 mins
A = AVERAGE TIME PER WEEK (in minutes): (Total Time Divided by Number of Weeks)			12.1 mins

B. BY COMPUTER METHOD			
PERIOD	START TIME	STOP TIME	TOTAL TIME
Week 2	2:48:00	2:57:30	9.50 mins
Week 3	8:19:00	8:26:30	7.50 mins
Week 4	8:40:00	8:47:30	7.50 mins
Week 5	8:37:00	8:44:00	7.00 mins
Week 6	5:07:00	5:16:20	9.25 mins
TOTAL:			40.75 mins
B = AVERAGE TIME PER WEEK (in minutes): (Total Time Divided by Number of Weeks)			8.15 mins

AVERAGE B/AVERAGE A = 0.674
ANTICIPATED OUTCOME = 0.533

APPENDIX L: TIMING SHEET
COMPUTING FINAL GRADE STATISTICS

TIMING SHEET
COMPUTING FINAL GRADE STATISTICS

A. BY MANUAL METHOD							
SECTION	GRADE					TIME	
	P	N	W	WX	WA	START	STOP
SEC 201	7	12	5	0	1		
SEC 202	3	18	5	0	0		
SEC 203	5	10	4	0	0		
SEC 205	4	9	2	0	1		
SEC 290	5	9	2	0	1		
SEC 291	7	14	4	1	0		
TOTAL:	31	72	22	1	3	6:25:00	6:27:45
TOTAL TIME A (in minutes):							2.75

B. BY COMPUTER METHOD							
SECTION	GRADE					TIME	
ALL	P	N	W	WX	WA	START	STOP
TOTAL:	31	72	22	1	3	4:30:10	4:30:40
TOTAL TIME B (in minutes):							0.50

TOTAL TIME B/TOTAL TIME A = 0.182
ANTICIPATED OUTCOME = 0.167

APPENDIX M: TIMING SHEET
METHOD COMPARISON

TIMING SHEET
OVERALL COMPARISON OF MANUAL VERSUS COMPUTER METHOD

A. BY MANUAL METHOD			
TASK	START TIME	STOP TIME	TOTAL TIME
Input Class Rolls	N/A	N/A	N/A
Hand-Write Test Record Labels (Average Time X Total # Students)	N/A	N/A	40.31
Check Class Rolls for Returning Students (Average Time X # Returning Students)	N/A	N/A	65.79
Prepare Instructor Notification Reports (Average Time X # Weeks in Term)	N/A	N/A	169.40
Input Final Grades	N/A	N/A	N/A
Compute Final Grades	6:25:00	6:27:45	2.75
TOTAL TIME A (in minutes):			278.25

B. BY COMPUTER METHOD			
TASK	START TIME	STOP TIME	TOTAL TIME
Input Class Rolls	2:00:00	2:23:30	23.50
Print & Apply Test Record Labels	2:30:00	2:41:30	11.50
Check Class Rolls for Returning Students	4:30:00	4:40:00	10.00
Prepare Instructor Notification Reports	N/A	N/A	114.10
Input Final Grades	4:00:00	4:05:00	5.00
Compute Final Grades	4:30:10	4:30:40	0.50
TOTAL TIME B (in minutes):			164.60

TOTAL TIME B: 164.60
TOTAL TIME A: 278.25
ANTICIPATED OUTCOME: TOTAL TIME B < TOTAL TIME A

APPENDIX N: TEST CENTER STAFF QUESTIONNAIRE

TEST CENTER STAFF QUESTIONNAIRE
COMPUTERIZATION OF STUDENT TEST RECORD DATA

The purpose of this questionnaire is to determine your reactions to using the computer to manage student test record data. Please record your name, today's date, and the position you hold in the Test Center in the spaces provided below.

Name Chris Adams Date 10/24/91

Position Dept. Technician

DIRECTIONS: Read each of the statements below and decide whether you strongly disagree (SD), disagree (D), have no opinion or the question doesn't apply to you (N), agree (A), or strongly agree (SA). Mark your answers accordingly.

		SD	D	N	A	SA
1.	The dBASE III+ tutorial helped to prepare me for using the computer database.	--	--	--	--	●
2.	I received personal assistance in using the computer database.	--	--	--	--	●
3.	I found the instructions manual useful.	--	--	--	--	●
4.	I found the computer database simple to use for locating the records of returning students.	--	--	--	--	●
5.	I found the computer database simple to use for preparing Test Record Sheet Labels.	--	--	--	●	--
6.	I found the computer database simple to use for preparing the weekly Instructor Notification Reports.	--	--	--	--	●
7.	I found the computer database simple to use for preparing the final grade statistics.	--	--	--	●	--
8.	I was able to perform the tasks described in questions 4 - 7 in less time than it would have taken to perform the same tasks manually.	--	--	--	--	●
9.	I recommend that the computer database be adopted permanently for College Preparatory English.	--	--	--	●	--

TEST CENTER STAFF QUESTIONNAIRE
COMPUTERIZATION OF STUDENT TEST RECORD DATA

The purpose of this questionnaire is to determine your reactions to using the computer to manage student test record data. Please record your name, today's date, and the position you hold in the Test Center in the spaces provided below.

Name Thelma Pemberton Date 10-15-91

Position Test Administrator

DIRECTIONS: Read each of the statements below and decide whether you strongly disagree (SD), disagree (D), have no opinion or the question doesn't apply to you (N), agree (A), or strongly agree (SA). Mark your answers accordingly.

		SD	D	N	A	SA
1.	The dBASE III+ tutorial helped to prepare me for using the computer database.	--	--	--	(A)	--
2.	I received personal assistance in using the computer database.	--	--	--	(A)	--
3.	I found the instructions manual useful.	--	--	--	(A)	--
4.	I found the computer database simple to use for locating the records of returning students.	--	--	(N)	--	--
5.	I found the computer database simple to use for preparing Test Record Sheet Labels.	--	--	--	--	(SA)
6.	I found the computer database simple to use for preparing the weekly Instructor Notification Reports.	--	--	--	--	(SA)
7.	I found the computer database simple to use for preparing the final grade statistics.	--	--	(N)	--	--
8.	I was able to perform the tasks described in questions 4 - 7 in less time than it would have taken to perform the same tasks manually.	--	--	--	--	(SA)
9.	I recommend that the computer database be adopted permanently for College Preparatory English.	--	--	--	--	(SA)

TEST CENTER STAFF QUESTIONNAIRE
COMPUTERIZATION OF STUDENT TEST RECORD DATA

The purpose of this questionnaire is to determine your reactions to using the computer to manage student test record data. Please record your name, today's date, and the position you hold in the Test Center in the spaces provided below.

Name Marty Trowsdell Date 10/15/91

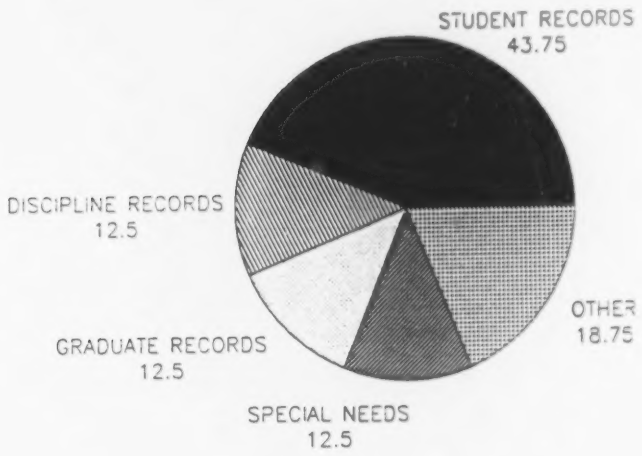
Position Test Administrator

DIRECTIONS: Read each of the statements below and decide whether you strongly disagree (SD), disagree (D), have no opinion or the question doesn't apply to you (N), agree (A), or strongly agree (SA). Mark your answers accordingly.

		SD	D	N	A	SA
1.	The dBASE III+ tutorial helped to prepare me for using the computer database.	--	--	X	--	--
2.	I received personal assistance in using the computer database.	--	--	X	--	--
3.	I found the instructions manual useful.	--	--	X	--	--
4.	I found the computer database simple to use for locating the records of returning students.	--	--	--	--	X
5.	I found the computer database simple to use for preparing Test Record Sheet Labels.	--	--	--	--	X
6.	I found the computer database simple to use for preparing the weekly Instructor Notification Reports.	--	--	X	--	--
7.	I found the computer database simple to use for preparing the final grade statistics.	--	--	X	--	--
8.	I was able to perform the tasks described in questions 4 - 7 in less time than it would have taken to perform the same tasks manually.	--	--	--	--	X
9.	I recommend that the computer database be adopted permanently for College Preparatory English.	--	--	--	--	X

APPENDIX O: DISTRIBUTION OF DBMS USES IN SCHOOLS

DISTRIBUTION OF DBMS USES
IN SCHOOLS



For educational use only.

APPENDIX P: IMPLEMENTATION TIMELINE

IMPLEMENTATION TIMELINE

Pre-implementation:

- Design database structure and report formats
- Input 20-40 records to test design
- Revise structure/reports if necessary
- Input test record data for past two years
- Proof for data entry errors

Week 1:

- Input current term's class rolls
- Print labels for Test Record Sheets
- Time labelling of Test Record Sheets by hand
- Time labelling of Test Record Sheets with labels
- Print alphabetized list of all students who have taken College Preparatory English within last year but not completed their testing requirements
- Time Test Center staff checking for returning students using Instructor Notification Notebook
- Time Test Center staff checking for returning students using alphabetized printout
- Check all rosters for returning students using alphabetized printout

Week 2:

- Train Test Center staff to input test mastery data and print weekly Instructor Notification reports
- Time Test Center staff inputting test mastery data in computer and printing Instructor Notification Reports
- Time Test Center staff preparing Instructor Notification reports by hand

Week 3:

- Monitor Test Center staff as they use computer database to input data and print reports
- Begin to prepare instructions manual

Week 4:

- Continue to monitor Test Center staff using computer database to input data and print reports
- Continue to work on instructions manual
- Meet with CPI Program Manager to discuss progress and determine if any revisions are necessary

Week 5:

- Continue to monitor Test Center staff using computer database to input data and print reports
- Continue to work on instructions manual
- Meet with College Preparatory English instructors to determine if computer-printed Instructor Notification Reports meet their needs

Week 6:

- Continue to monitor Test Center staff using computer database to input data and print reports
- Meet with Test Center staff for input on instructions manual. Make any necessary revisions

Weeks 7 - 14:

- Continue to monitor Test Center staff using computer database to input data and print reports
- Finalize instructions manual

Week 15:

- Record the time it takes the Test Center supervisor to compute the course pass/fail/withdraw statistics using manual methods
- Record the time it takes the Test Center supervisor to compute the same statistics using the computer database
- Proof computer database for current term against Test Record notebook for any data entry errors
- Print out new alphabetized list of students who have not completed the required tests
- Have Test Center staff complete survey

Post-implementation:

- Discuss results of project with CPI Program Manager to determine applicability to test record data for other CPI courses
- Share results of project with CPI Program Managers of other three campuses

ATTACHMENT: dBASE INSTRUCTIONS MANUAL

dBASE III+ INSTRUCTIONS MANUAL

FOR ENC1080

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INTRODUCTION

A database management system is a computer program that allows you to store, organize, and retrieve data. A file cabinet analogy is typically used to explain certain database terms, such as *file*, *record*, and *field*. Imagine that several years' worth of ENC1080 Test Record Sheets are filed in the top drawer of a filing cabinet. Every piece of paper in that drawer is part of the ENC1080 *file*. Each Test Record Sheet is a *record* in the file. And each piece of information on the Test Record Sheet, such as student name, social security number, etc., represents a *field*.

Managing all those pieces of paper by hand becomes a tedious and time-consuming process. A database management system allows you to store the information from the pieces of paper in the computer, which can then reorganize and access information much more quickly than humans can.

dBASE III+ is the database management system used to organize the ENC 1080 records. Once information from the class rolls is typed into the computer, the computer can be used to print labels for the Test Record Sheets. Then every week, the database is updated with the tests that students pass, and the computer is used to print out the Instructor Notification Reports. At the end of the term, the final grades are typed into the computer, which then calculates the total numbers of Ps, Ns, WXs, etc. Then a list of all students who have taken ENC 1080 within the last year but not passed it is printed out to be used the next term for identifying returning students. All of these tasks can be performed by the computer in less time than it would take to perform them by hand.

While dBASE III+ is a network program, the actual ENC 1080 records are stored on the harddrive of the computer. Even though all of the English records dating back for several years can fit on one 3.5-inch disk, the computer can access information on the harddrive more quickly than it can access information from a floppy disk.

Getting started involves logging on to the network, accessing the directory on the harddrive that contains the ENC 1080 records, starting dBASE, and becoming familiar with how dBASE operates.

LOGGING ON TO THE NETWORK

1. Turn on the computer and monitor.
2. When you see the blue IBM logo, press <ENTER>.
3. Type **guest** for user ID and press <ENTER>.

ACCESSING THE DATA DIRECTORY

1. When you see the network Main Menu, hold down the <ALT> key and tap in slow succession the letters E S and C.
2. When you see the H prompt (H>), type **c:** and press <ENTER>.
3. When you see the C prompt, type **cd\dbase\enc1080** and press <ENTER>.
4. Type **g** and press <ENTER> to return to the network menu.

STARTING dBASE

1. Choose Database Management from the network Main Menu.
2. Choose dBASE III+ from the Database Management Menu.
3. Ignore the message to put a disk in drive A and press any key to continue.
4. When you see the license agreement, press <ENTER>.
5. You should now see the dBASE Assist Menu (see figure 1).

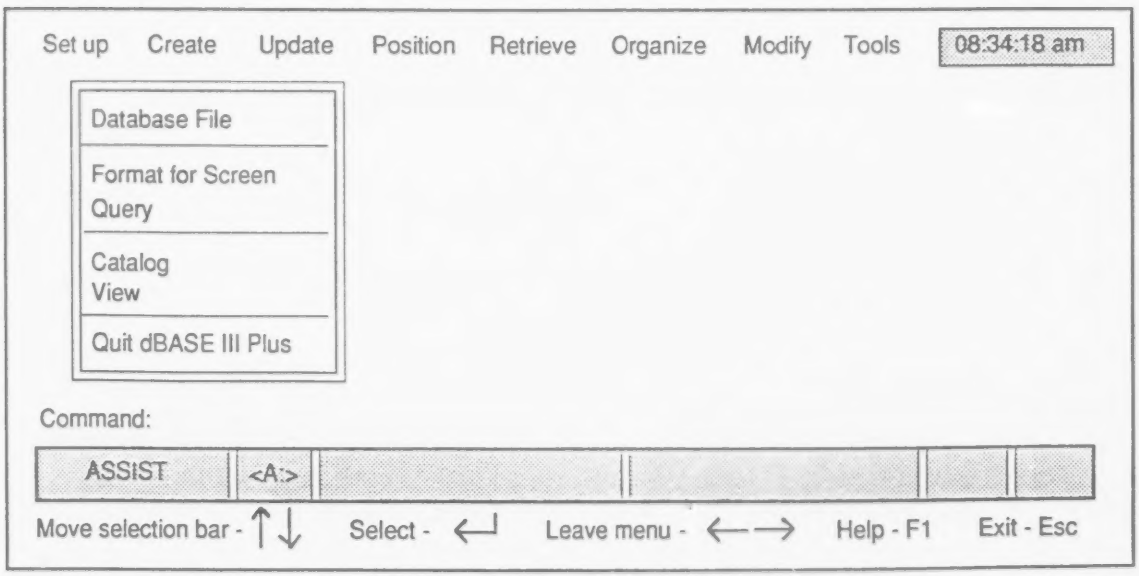

Figure 1

ASSIST MENU VS. DOT PROMPT

dBASE provides two modes of operation: *command mode* and *menu mode*. In menu mode, you use the Assist Menu to perform dBASE operations. Menu mode is recommended for users learning dBASE. In command mode, the user types dBASE commands at a dot prompt. Command mode is good for experienced dBASE users who know which commands to type. While in general, tasks can be performed from either the Assist Menu or the dot prompt, some dBASE tasks can only be performed from the dot prompt. You will work with both the Assist Menu and the dot prompt.

To get to the dot prompt from the Assist Menu, press <ESC>. To get to the Assist Menu from the dot prompt, type **assist** and press <ENTER> or simply press <F2>.

USING THE ASSIST MENU

At the top of the screen (figure 1) you will see a list of options. Each option has its own pull-down menu. You may move to the various options by using the left and right arrow keys or by typing the first letter of the option, such as **R** for Retrieve.

When you first access the Assist Menu, the cursor will be positioned on "Database file" in the Set Up menu. That is because the first thing you usually do is set up or open the database file you are going to use. Press the right arrow to see the options that are available in the other menus. The options you will work with most often are Set Up - Database file, Update - Edit, and Retrieve - Report.

When you use the Assist Menu, you will see the corresponding dBASE command being built toward the bottom of the screen. Watch what appears after "Command:" as you perform the following steps:

1. With the cursor on "Database file" in the Set Up menu, press <ENTER>.
2. When you see the list of drives, highlight C: and press <ENTER>.
3. When you see the list of .dbf files, highlight "ENC1080.DBF" and press <ENTER>.
4. When asked "Is the file indexed? Y/N", type **Y**.
5. When the cursor appears on "ENCNAME.NDX" press <ENTER>.
6. Look at what is listed after command. You should see "USE C:ENC1080 INDEX ENCNAME." If you were using the dot prompt instead of the Assist Menu, this is what you would have typed to open the database file and sort on the students' last name.
7. Press the left arrow to return to the Set Up menu.

8. Press the down arrow to select "Format for Screen" and press <ENTER>.
9. Highlight C: and press <ENTER>.
10. Select "ENC1080.FMT" by pressing <ENTER>.
11. Press the down arrow to select "Query" and press <ENTER>.
12. Highlight C: and press <ENTER>.
13. Select "CURRENT.QRY" by pressing <ENTER>.
14. Type **P** to move to the Position menu.
15. Press the up arrow to move to "Goto Record" and press <ENTER>.
16. Select "Top" by pressing <ENTER>.
17. Type **U** to move to the Update menu.
18. Press the down arrow to move to "Edit" and press <ENTER>. You should now see a screen similar to figure 2.
19. Now press <ESC> twice to return to the dot prompt. You can play back the last several commands by pressing the up arrow five times.
20. Press the down arrow to return to a blank dot prompt.
21. Press <F10> to return to the edit screen.

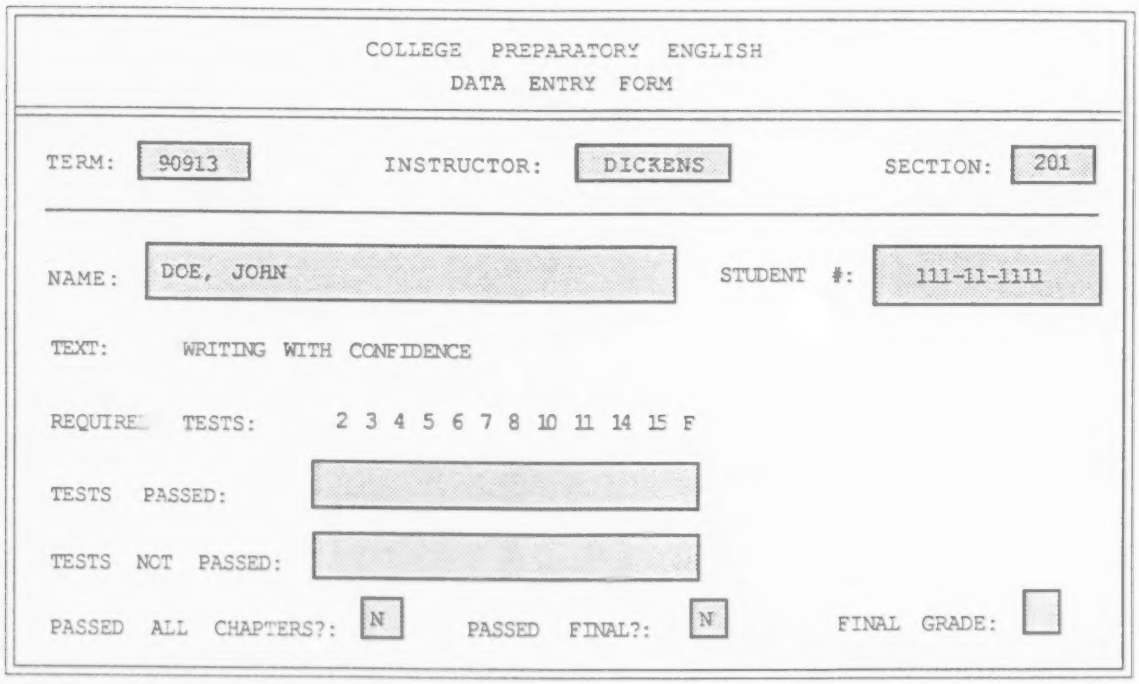

Figure 2

CURSOR MOVEMENT

Practice everything described in this section to become familiar with moving around and between dBASE records.

Between Records

Use the <Pg Dn> key to move to the next record. While the cursor is located in the last field of a record, doing any of the following will have the same effect as pressing <Pg Dn>:

- Typing something in the last space of the last field
- Pressing <ENTER>
- Pressing the <Right Arrow> key past the last space in the last field
- Pressing the <Spacebar> past the last space of the last field

Use the <Pg Up> key to move to the previous record. Pressing <Backspace> or the <Left Arrow> key while the cursor is in the first position of the first field has the same effect as pressing <Pg Up>. If the first record is showing on the screen, pressing <Pg Up> takes you back to the dot prompt.

Between Fields of a Record

Use the <Down Arrow> key or <ENTER> to move to the next field. Doing any of the following will also move the cursor to the next field:

- Typing data that matches or exceeds the available field length
- Pressing the <Spacebar> past the last position in a field
- Pressing the <Right Arrow> past the last position in a field

Use the <Up Arrow> key to move to the previous field. While the cursor is located in the first position of a field, doing either of the following will have the same effect as pressing <Up Arrow>:

- Pressing <Backspace>
- Pressing <Left Arrow>

CURSOR MOVEMENT, cont.

Within a Field of a Record

<Home> and <End> - In an empty field, the <Home> and <End> keys move to the extreme left and extreme right of the field respectively. In a field that contains data, <Home> moves one data element to the left and <End> moves one data element to the right.

<Left Arrow> and <Right Arrow> - The Left and Right Arrow keys move one position to the left and right respectively.

DELETING DATA

Don't practice any of the delete features, since you are using actual dBASE records. Just read about the features and refer to this section when you are appending (adding) or editing records.

<Spacebar> - When <Ins> is off, pressing the <Spacebar> deletes any data above the cursor, while the cursor moves to the right. When the <Ins> key is on, pressing the <Spacebar> inserts spaces in front of any data to the right of the cursor.

<Backspace> - Pressing the <Backspace> key moves the cursor to the left, deleting any data above it and dragging with it any data that appears to the right of the cursor.

<Del> - When you press the <Del> key, the cursor remains stationary but deletes data to the right of it.

<CTRL> T - Pressing <CTRL> T deletes the word or number the cursor is positioned under.

<CTRL> Y - Pressing <CTRL> Y deletes any data in the field above and to the right of the cursor position.

Before proceeding to the next section, exit dBASE as follows:

1. Press <ESC> one or more times to return to the dot prompt.
2. At the dot prompt, type **close all** and press <ENTER>.
3. Type **quit** and press <ENTER>.
4. Press **L** to log off but leave the computer on.

The steps listed on pages 3-4 can be automated by the use of a dBASE *command* or *program* file. Such a command file, named **instnot.prg**, has already been created and will be used to prepare the weekly Instructor Notification Reports.

USING INSTNOT.PRG

1. Follow the steps on page 2 for GETTING STARTED.
2. Press <ESC> to leave the Assist Menu.
3. At the dot prompt, type **set default to c:** to change the logged disk drive from A: to C:.
4. Type **do instnot** and press <ENTER>.

You should now a screen similar to figure 2, which should contain the record of the first student listed in the Test Record Notebook. The records in the database file should appear in the same order as the Test Record Sheets in the notebook.

UPDATING THE RECORDS

1. Press the <Down Arrow> five times to move the cursor to the "TESTS PASSED" field.
2. Check the Test Record Sheet to see if the student has passed any tests since the last time the database was updated. If no, skip to step 4. If yes, type the test number(s), lining them up with the required test numbers above. If you make a mistake, follow the instructions for CURSOR MOVEMENT and DELETING DATA.
3. If the student has withdrawn (W) or been withdrawn (WX or WA), that information with a date will be recorded at the top of the Test Record Sheet. Press the <Down Arrow> until you reach the "Grade" Field and enter the appropriate grade. If the grade is a "W," make sure you type it in the left-most position of the field. If the grade was a "WA" or "WX," you won't have to press <Pg Dn> to move to the next record.
4. Press <Pg Dn> to move to the record of the next student and turn to the next Test Record Sheet in the notebook.
5. Repeat steps 1 - 4 until you've reached the last student's record in the database and the last Test Record Sheet in the notebook. If the last record is still showing on the screen, press <Pg Dn> to return to the dot prompt.
6. When you see the dot prompt again, you're ready to print.

PRINTING THE INSTRUCTOR NOTIFICATION REPORTS

Getting the Printer Ready

If the computer you are using does not have a printer attached to it, then your print requests will be sent to one of the network printers. If this is the case, make sure that that network printer is powered on and on-line, and the paper is lined up.

If the computer you are using has a printer attached, that printer may or may not be set up as a network printer. Make sure the printer is powered on and on-line and the paper is lined up. If the printer is a network printer, it will be identified by a label -- **LS-PRT-Q#**, and you won't have to do anything else to get it ready. If it is **not** a network printer, then do the following:

1. Hold down <CTRL> and press <ESC> for the System Pop-up Menu.
2. Highlight "Control the Network Printer" and press <ENTER>.
3. Highlight "Use the Local Printer" and press <ENTER>.
4. Press <ESC> twice to exit the pop-up menu.

Sending the Report to the Printer

With the dot prompt showing, type **do allsec** and press <ENTER>. "Allsec" is a program which prints a report form, sorting by section number and student's last name.

QUITTING

1. If you are editing a record, press <CTRL><END> to save.
2. If you are not already at the dot prompt, press <ESC> until you see the dot.
3. At the dot prompt, type **close all** and press <ENTER>.
4. Type **quit** and press <ENTER>.
5. When you see the DataBase Management Class Menu, press <ESC> to return to the previous menu.
6. Press **L** to log off, unless you have something else to do, such as backing up the database.

BACKING UP THE DATABASE

The database should be backed up on a weekly basis. Since the data is located on the harddrive, the backup copy will be placed on a diskette. In that way, if the computer or harddrive fails, the data can be copied into another computer.

1. From the Main Menu, highlight "DOS & Network Options" and press <ENTER>.
2. From the DOS Class Menu, highlight "Exit to Disk in Drive A" and press <ENTER>.
3. Put the designated backup disk in Drive A and press any key to continue.
4. When you see the A prompt (A>), type **xcopy c:\dbase\enc1080** and press <ENTER>.
5. When you see the A prompt again, type **exit** and press <ENTER>.
6. Remove the backup disk and store it.
7. Press **L** to log off.

FINALIZING RECORDS

Once the testing deadline has passed and the Test Record Sheets have been updated for the final time, you can finalize the database for the current term. The first part of finalizing the records involves updating the fields for tests passed and not passed. The second part involves inputting the final grades from the grade sheets.

1. Follow the instructions for starting dBASE and using **instnot.prg**.
2. With the record of the first student showing, verify that the information in the field "TESTS PASSED" is correct.
3. Input the tests not passed in the field "TESTS NOT PASSED."
4. Input **Y** or **N** for the field "PASSED ALL CHAPTERS?" (tests 1-15).
5. Input **Y** or **N** for the field "PASSED FINAL?" (test F).
6. Input the final grade (P, N, W, WX, or WA) when the grade sheets become available.
7. If the grade sheets are not available yet, follow the instructions for "QUITTING" and "BACKING UP THE DATABASE."

CALCULATING GRADE STATISTICS

Once the final grades have been inputted, you can use the program **grades.prg** to calculate the final grades statistics.

1. Follow the steps on page 2 for GETTING STARTED.
2. Press <ESC> to leave the Assist Menu.
3. At the dot prompt, type **set default to c:** to change the logged disk drive from A: to C:.
4. Make sure the printer is ready (see page 8).
5. At the dot prompt, type **do grades** and press <ENTER>.

DATABASE MAINTENANCE

At the end of the term, two dBASE files have to be updated. One file determines the one-year period used to print out the list of students who haven't passed. The other determines the current term.

Modifying the File **oneyear.prg**

1. Follow the steps on page 2 for GETTING STARTED.
2. Press <ESC> to leave the Assist Menu.
3. At the dot prompt, type **set default to c:** to change the logged disk drive from A: to C:.
4. Press <F2> for the Assist Menu.
5. Press **M** for Modify.
6. Highlight "Query" and press <ENTER>.
7. Highlight drive C: and press <ENTER>.
8. Highlight "ONEYEAR.QRY" and press <ENTER>. Now you are in the Query Edit Screen.
9. Highlight "Line Number" and press <ENTER>.
10. Type **2** and press <ENTER>.
11. Highlight "Constant/Expression" and press <ENTER>.
12. Use the <BACKSPACE> key to delete information that needs to be changed, type the term designation, enclosed in single quotes, for the term that is about to start, and press <ENTER>.
13. Highlight "Line Number" again and press <ENTER>.
14. Type **1** and press <ENTER>.
15. Highlight "Constant/Expression" again and press <ENTER>.
16. Use the <BACKSPACE> key to delete information that needs to be changed, type the term designation, enclosed in single quotes, for the fourth term back from the new current term, and press <ENTER>. For instance, if the current term is 90913, the fourth term back would be 89904.
17. Press **E** for Exit and <ENTER> to save.
18. Proceed to the section on modifying **current.qry**.

Modifying the File **current.qry**

1. Highlight "Query" and press <ENTER>.
2. Highlight drive C: and press <ENTER>.
3. Highlight "CURRENT.QRY" and press <ENTER>. Now you are in the Query Edit Screen.
4. Highlight "Constant/Expression" and press <ENTER>.
5. Use the <BACKSPACE> key to delete the information that needs to be changed, type the term designation, enclosed in single quotes, for the new current term, and press <ENTER>.
6. Press **E** for Exit and <ENTER> to save.

PRINTING THE LIST OF STUDENTS WHO HAVEN'T PASSED

After the records for the current term have been finalized, including the input of the final grades, the program **nplyear.prg** can be used to print out the list of students who have taken ENC 1080 in the last year but not passed it. The year is actually the last four terms, including the new current term. So if the current term is Winter 91, the list will include records dating back to and including Spring 90. This list will be used for the coming term to determine the status of returning students.

1. Follow the instructions for getting the printer ready.
2. Set the printer for elite print (12 cpi).
3. Follow the steps on page 2 for GETTING STARTED.
4. Press <ESC> to leave the Assist Menu.
5. At the dot prompt, type **set default to c**: to change the logged disk drive from A: to C:.
6. Type **do nplyear** and press <ENTER>.
7. When you see "ENCNAME.DBF already exists, overwrite?" press **Y** for yes.
8. Save the printout for the next term.

At the beginning of the term, as soon as you know which sections of ENC 1080 are being offered, the Instructor Notification Report Forms and the program that prints out the forms have to be modified. When the final class rosters are available, you can input the new current term's data into the computer. Once this data is inputted, the records will be resorted by term, section, and student's last name. Then the information for the new term will be used to print out the labels for the Test Record Sheets. Lastly, the names of the students in the new term will be checked against the printout of students who have taken the course within the last year but not passed it, and their Test Record Sheets will be updated.

DATABASE MAINTENANCE

The report forms are dBASE files that begin with "SEC" followed by a number, and end with "FRM." For example, the report form for Section 201 would be named SEC201.FRM. The instructors' names that appear on the report forms have to be updated, and if there isn't a report form file for a certain section, one has to be made.

Checking the Existing Report Forms

1. Follow the instructions on page 2 for GETTING STARTED.
2. With the cursor on "Database file" in the Set Up menu, press <ENTER>.
3. When you see the list of drives, highlight C: and press <ENTER>.
4. When you see the list of .dbf files, position the cursor over "ENC1080.DBF" and press <ENTER>.
5. When asked "Is the file indexed? Y/N", type **N**.
6. Press **T** for Tools.
7. Position the highlight bar on "Directory" and press <ENTER>.
8. Highlight drive C: and press <ENTER>.
9. Highlight ".frm Report Files" and press <ENTER>.
10. Note the filenames that begin with "SEC." You'll have to make report files for whichever sections aren't listed here. For example, let us suppose you need a report form for section 204.
11. Press any key to return to the Tools Menu.

Making Copies of Report Forms

1. Move the highlight to "Copy File" and press <ENTER>.
2. Highlight drive C: and press <ENTER>.
3. Highlight the file "INST_NOT.FRM" as the file to copy from and press <ENTER>.
4. Highlight drive C: again and press <ENTER>.
5. Type the filename followed by the three-letter extension. In this case, you would type **sec204.frm** and press <ENTER>.
6. Press any key to continue working in the Assist Menu.

Modifying Report Forms

1. Press **M** for the Modify Menu.
2. Highlight "Report" and press <ENTER>.
3. Highlight drive C: and press <ENTER>.
4. Highlight the filename, such as "SEC204.FRM" and press <ENTER>.
5. With "Page title" highlighted, press <ENTER>.
6. Press the <END> key to move to the section number and make corrections if necessary.
7. Press <END> followed by <Right Arrow> to move the cursor to the instructor's name make corrections if necessary.
8. Press <END> followed by <Right Arrow> to move the cursor to the term and make corrections if necessary.
9. Press the <ENTER> key until the Page Title edit screen goes away.
10. Press **E** to exit and <ENTER> to save.
11. Repeat steps 2 - 10 for any other report forms that need to be modified.
12. Press <ESC> until you return to the dot prompt and proceed to the section below on modifying "**allsec.prg**."

Modifying the file **allsec.prg**

The program that prints all of the instructor notification forms has to be updated with the section numbers of the current term.

1. At the dot prompt, type **modify command allsec.prg** and press <ENTER>.
2. In the third line of the command file, type the current term. You may only need to change the last number.
3. For every section of ENC 1080, you will need to have a line saying "REPORT FORM SECXXX.FRM FOR SECTION = 'XXX' TO PRINT" followed by a line saying "EJECT."
4. You can type over the section numbers, press <CTRL>Y to delete whole lines, and press <CTRL>N to insert lines.
5. After making the necessary changes, press <CTRL>W to save.
6. Follow the instructions on pages 8 and 9 for "Quitting" and "Backing Up the Database."

INPUTTING FINAL CLASS ROSTERS FOR THE NEW TERM

After the drop/add period is over, final class rolls can be obtained either from the registrar or from any mainframe terminal (do an **sdcl** and a screen print to obtain the roll from the mainframe).

1. Follow the instructions on page 2 for getting started.
2. When you see the Assist Menu, press <ESC>.
3. When you see the dot prompt, type **set default to c:** and press <ENTER>.
4. Type **do addrec** and press <ENTER>.

You will see an old record on the screen dating back several terms. The reason this record appears is that a dBASE feature called "carry" has been invoked to make inputting the records faster. When "carry" has been set on, any data from a previous record carries forward to the next record. So the record that appears on the screen now is a duplicate of the one before. You will type over the information that is different for each student, while not retyping the information that is the same.

1. The cursor will be resting in the field for "TERM." Type the new term, and the cursor will move to the "INSTRUCTOR" Field.
2. Type the name of the instructor for the first section of the new term. If the new instructor's name is shorter than the one that appeared in this record, press <CTRL>Y to delete the leftover characters. Then press <ENTER> to move to the "SECTION" field.
3. Type the new section, and the cursor will move to the "NAME" field.
4. Type the first student's name. If there are leftover characters, press <CTRL>Y to delete them. Press <ENTER> to move to the "STUDENT #" field.
5. Type the student's ID number. You do not have to type the hyphens or press <ENTER> at the end.
6. With the cursor in the "TESTS PASSED" field, press <CTRL>Y to delete any information in that space. Press <ENTER> to move to the next field.
7. Press <CTRL>Y to delete any information in the "TESTS NOT PASSED" field. Press <ENTER> to move to the next field.
8. Type **N** for "PASSED ALL CHAPTERS?"
9. Type **N** for "PASSED FINAL?"
10. With the cursor in the "FINAL GRADE" field, press <CTRL>Y to delete anything there.
11. Press <Pg Dn> for the next record.

A duplicate of the record you just finished editing now appears on the screen. For the rest of the students on this class roll, you'll only have to change the name and ID number. When you get to the next class roll, you'll change the section number and instructor's name (if necessary) as well, but only for the first student appearing on the class roll, since the new information will carry forward to subsequent records.

1. Press the <Down Arrow> three times to move the cursor from the "TERM" field to the "NAME" field.
2. Type the student's name, press <CTRL>Y to delete any leftover characters. Press <ENTER> to move to the next field.
3. Type the student's ID number.
4. Press <Pg Dn> to move to the next record.
5. Repeat steps 1-4 for the rest of the students appearing on this class roll.
6. Whenever you start a new section, type the correct section number and instructor's name.
7. When you get to the last student of the last roll, do NOT press <Pg Dn> at the end, because that will make a duplicate of the last student's record. Instead, press <CTRL><END> to save and quit adding records.

RESORTING THE DATABASE

When you have finished inputting the class rolls, you need to resort the database by term, in descending order; by section, in ascending order; and by student's name, in alphabetical order. A program called **sort.prg** will do this for you.

1. You should be at the dot prompt now. If not, press <ESC> until you see the dot prompt.
2. Type **do sort** and press <ENTER>.
3. When you see "ENCTERM.DBF already exists, overwrite?" press **Y** for yes.
4. When the sorting has finished, type **close all** and press <ENTER>.
5. Press <F2> for the Assist Menu.
6. Press **T** for the Tools Menu.
7. Highlight "Copy File" and press <ENTER>.
8. Highlight drive C: and press <ENTER>.
9. Highlight ENCTERM.DBF and press <ENTER>.
10. Highlight drive C: and press <ENTER>.
11. Enter the filename: **enc1080.dbf** and press <ENTER>.
12. When you see "enc1080.dbf already exists, overwrite?" press **Y** for yes.

RESORTING THE DATABASE, cont.

13. After sorting is finished, press <ESC> twice.
14. Type **close all** and press <ENTER>.
15. Type **use encl080** and press <ENTER>.
16. Type **index on name to encname** and press <ENTER>.
17. When you see "encname.ndx already exists, overwrite?" press **Y** for yes.
18. Type **close all** and press <ENTER>.

PRINTING TEST RECORD SHEET LABELS

The information that was inputted from the class rolls can now be used to print out the Test Record Sheet Labels. Use the continuous form, 1-across labels. The instructions for aligning the labels in the printer is for the Epson FX-850 printer only.

1. Line the left edge (perforated) of the label with the third plastic ridge on the left of the printer.
2. Press the On Line button to feed the label form into the printer.
3. With the On Line button blinking, press the Form Feed (moves the form up) button or Line Feed button (moves the form down) until the printer beeps. The beep indicates the factory-set top-of-form position.
4. Press the On Line button to take the printer off line.
5. Press the Line Feed button four times.
6. Press the On Line button to put the printer back on line.
7. Press the SelecType buttons to select Sans Serif font and 12 CPI pitch.
8. At the dot prompt type **do label** and press <ENTER>.

CHECKING FOR RECORDS OF RETURNING STUDENTS

Since students are given credit for any tests passed within a year of the current enrollment, the names appearing on the current class rolls have to be checked against the printout of students who haven't passed.

1. Check each name on the class rolls against the printout. If the name of a currently enrolled student appears on the printout, check the ID number to make sure it is the same student. If the student's name appears more than once on the printout, use the most recent record, or the name that appears uppermost on the list.
2. Record any tests passed on the student's Test Record Sheet. In the completed column of the Test Record Sheet, record the term when the test was passed and write your initials.

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